Concept Mapping Strategy: An Effective Tool for Improving Administration Nursing Students' Knowledge and Attitude

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Abstract

Background: Concept mapping, a learning strategy used to understand key concepts and relationships between concepts, has been suggested as a method to plan and evaluate nursing care.

The aim: of study was to assess the effect of concept mapping strategy on improving administration nursing students' knowledge and attitude.

Materials and Methods:a true - experimental design was conducted in faculty of nursingZagazig University, three tools were used for data collection namely; pre/posttest knowledge questionnaire, rubric for assessing concept map, and attitude assessment tool

Results: Before implementing the training the highest percentages of nursing students had poor level of knowledge (92.5%), while all nursing students had good level of knowledge after implementing training. The highest percentage of nursing students had a positive attitude towards adopting concept mapping to learn nursing administration course (77.5%).

Keywords: Concept mapping; Nursing administration; students; attitude

Introduction:

Rapid scientific and technological advanced in the health care mean that nurses need to keep learning and engage in professional education so that they can continue to provide safe and quality care. Nursing education program which prepare nurses for practice as professional nurses have a vital role to play in ensuring that graduate are self-directed and critical thinker in responding to ongoing learning throughout their professional career. The self-directed learning and critical thinking can be applied in nursing by concept mapping teaching strategies (9).

Concept mapping can be used as an educational tool that used diagrammatic relationships among concepts that representing subject knowledge. It facilitate critical thinking by encouraging students to connect new knowledge to their prior learning, and give them an opportunity to gain further, wide and varied knowledge on a number of concepts in a short period, helping students brainstorm and generate new ideas, allowing students to more clearly communicate ideas, thoughts and information, this could improve achievement of students(6).

Success and achievement in any work requires a positive attitude to it and its future. As well, a nursing candidate should have an attitude rich in beliefs, philosophies about the ongoing program of nursing and the career as a whole. There has been a remarkable growth in the nursing profession over the past hundred years and the attitude of the society towards it's remodeled considerably (5). Nowadays, the study of attitude is the most imperative concept of social psychology that has a special place in studies. Awareness of the attitude can be useful to predict social behaviors and interpret after its occurrence(4, 9). As well, the graduate nurse must now have the confidence to communicate with other health care team members and use strategic thinking and sound judgment skills to function in unpredictable health care environments. In order to achieve these skills; creative teaching methods must be used to meet educational expectations; idea mapping is one of an active teaching strategy that improving nursing students' knowledge and attitude.

The main aim of our research was toassess the effect of concept mapping strategy on improving administration nursing students' knowledge and attitude.

Materials and Methods:

A true-experimental designwas conducted in a period of three months from mid-September 2019 until mid-December 2019 in faculty of nursing, Zagazig University,Egypt. A representative sample of the fourth year nursing students from the academic year 2019 - 2020, they enrolled in the nursing administration course who agreed to participate in the study and their total number were 219. The sample included 80 students in fourth academic year divided into two equal groups; study and control. The procedures followed were in accordance with the ethical standards in faculty of nursing, Zagazig University.

Three tools were used to collect data for the study, Tool I: Pre/Posttest knowledge question: developed by author which include two parts as following: Part one: personal characteristics data sheet Part two: Knowledge questionnaire sheet: to assess knowledge of nursing students in study group regarding concept mapping. I: Rubric for assessing concept map: This rubric adopted, from (7) to evaluate students' progress and effectiveness of using concept maps to ensure their understanding for the lectures and organize the data of the lectures by themselves.III: Attitude assessment tool: developed by (11) and modified by researcher, to assess nursing students' attitude towards adopting concept mapping to learn nursing administration course. The reliability coefficient for the pre/posttest knowledge questionnaire was 0.91 and 0.0.97 for the attitude assessment tool. Ethical approval for the study was obtained from Ethics Research Committee at the Faculty of Nursing; ZagazigUniversity. The research data were processed using the Statistical Package Social Science (SPSS) (version 20) software. Chi-square and Fisher exact tests were used to obtain the statistical significance. P-value of less than 0.05 considered statistically significant.

Results:

Table 1shows that the highest percentage of nursing students in the study and control groups were in the age group less and equal to 21 years old, female, single, and had secondary school certification.

Table 1: Personal characteristics of nursing students (n= 80).

Personal Characteristics	Study group (n=40)		Control group (n=40)		χ^2	p-value
	No	%	No	%		
Age(per years)					t=0.41	0.68
≤21	27	67.5	25	62.5		
>21	13	32.5	15	37.5		
Mean +SD Range	21.3±0.53 21-23		21.3±0.54 21-23			
Gender					0.078	0.78
Male	8	20.0	9	22.5		
Female	32	80.0	31	77.5		
Marital status						
Single	37	92.5	38	95		
Married	3	7.5	2	5		
					F	0.99
Previous graduation					0.56	0.46
technical institute	3	7.5	5	12.5		
secondary school	37	92.5	35	87.5		

χ^2:chi square   F :fisher test

It is clear that there was as a highly statistically significant difference between mean score of knowledge among nursing student before and after training (p=<0.001) as mentioned in table 2.

Table 2: Mean score of nursing student knowledge in the study group regarding concept mapping before and After training (n=40).

Total mean score of knowledge	Before concept mapping training	After concept mapping training	p-value
Mean± SD Range	6.82±2.427 2-12	13.45±0.986 11-14	<0.001(HS)

As well, it's clear that before implementing training the highest percentages of nursing students had

poor level of knowledge (92.5%), while all nursing students had good level of knowledge after implementing training as mentioned in table 3

Table 3: knowledge levels of nursing students in the study group regarding concept mapping before and after training (n=40).

Level of knowledge	Before concept mapping training		After concept mapping training	
	No	%	No	%
Poor <75%	37	92.5	0	0.0
Good ≥75	3	7.5	40	100

In additions, the highest percentage of nursing students agree up on the items related to concept mapping helped them integrate and clarify the interrelationships among course contents, and concept mapping helped them learn course of nursing administration (97.5%& 90.0%, respectively). The mean score of nursing students' agreement on all items of attitude towards concept mapping teaching strategy was 24.57±4.162, as mentioned in table 4.

Table 4: Attitudes score of nursing students in the study group towards adopting concept mapping to learn nursing administration course (n=40).

Items of attitude	Disagree		Undecided		Agree	
	No	%	No	%	No	%
Concept mapping helped me learn course of nursing administration	1	2.50	3	7.50	36	90
Concept mapping helped me integrate and clarify the interrelationships among course contents	0	0.0	1	2.50	39	97.5
learning strategy simulated me to learn and think independently	1	2.50	11	27.50	28	70
Concept mapping helped me reduce the barriers and enhance my interest in learning course of Nursing Administration	4	10.00	8	20.00	28	70
Concept mapping can be a new teaching and learning approach	4	10.00	27	22.50	27	67.5
I think the concept mapping strategy can be easily used in other curricula.	5	12.50	7	17.50	28	70
I will consider using the concept mapping learning strategy in other curricula.	8	20.00	13	32.50	19	47.5
I was satisfied with using concept mapping to learn course of Nursing Administration.	2	5.00	9	22.50	29	72.5
I liked using concept mapping to assist me to learn Nursing Administration course.	2	5.00	33	12.50	33	82.5
I can soon adapt to concept mapping.	0	0.0	16	40.00	24	60
Concept mapping is very creative	2	5.00	10	25.00	28	70
Concept mapping improved my thinking.	2	5.00	10	25.00	28	70
My mind was alert while doing concept mapping	2	5.00	9	22.50	29	72.5
Concept mapping is saved my time.	3	7.50	13	32.50	24	60
It is very challenging to make concept mapping	3	7.50	15	37.50	22	55
Mean± SD Range	24.57±4.162 16 - 30					

Table 5: Shows that the highest percentage of nursing students had positive attitude toward adopting concept mapping (77.5%).While, the lowest percentage of them had a uncertain attitude (10%).

Table 5: Attitudes levels of nursing students in the study group toward adopting concept mapping to learn nursing administration course (n=40).

Levels of attitude	No	%
Positive	31	77.5
Uncertain	4	10
Negative	5	12.5

Discussion:

The findings of the current study reveals that the highest percentage of nursing students in the study and control groups were in the age group 21 years old and less, this result may be due to that nursing students were in the same academic year and the highest percentage of them graduate from secondary school. This finding agreed with a previous study was conducted in Egypt by (2) who reported that the highest percentages of fourth-year nursing students who were enrolled in the course entitled nursing administration were in the age group 21 years old and less.

The present study revealed that the highest percentage of nursing students in the study and control groups were female, single, and had a secondary school certification. The possible explanation for these results may be due to that the faculty of nursing is predominantly attended by females and nursing considered a feminist career and entering of male to the faculties of nursing is recent in Egypt in general and in Zagazig university in particular, as well as the system of study in the faculty require attendance the theoretical lectures and clinical training in the hospital and prepare assignments this put students under overload and stress and have no time to marry and take a family responsibility.

The finding of the current study showed that there was as a highly statistically significant difference between mean score of nursing students' knowledge regarding concept mapping before and after training and the highest percentage of them had poor level of knowledge regarding concept mapping before training, while all of them had a good level of knowledge after training. This improvement was most likely attributed to the contents of the training which were based on students' needs and priorities, the simplicity of the language, and avoiding purely scientific terms that could have made the students reluctant to learn. These results are consistent with studies in Egypt(10, 3, 1) who found that there was a significant difference improvement in knowledge of nursing students before and after the awareness sessions regarding the concept map.

The results of the current study revealed that, the highest percentage of nursing students had a positive attitude towards concept mapping teaching strategy. This finding may be due that the students in the study group were interested in using the geometric form to organize the lecture's information which helped them to think deeply, and let them feel more motivated. These findings were in agreement with a study in Taiwan, (8) who reported that the majority of students reported a positive attitude toward concept mapping. Also the study of (3), reported that the nursing students in the study group showed positive attitude toward concept map strategy.

Conclusion:

It can be concluded that before implementing concept mapping training; the highest percentages of nursing students had poor level of knowledge, while all nursing students had good level of knowledge after implementing training. As well as, the highest percentage of nursing students had a positive attitude towards adopting concept mapping to learn nursing administration course. There was a statistically significant correlation between knowledge scores of nursing students in the study group and their achievement score of final exam.

Future Studies:

It is recommended toutilize the concept map learning strategy in all nursing academic courses (theory & practice).It is necessary to use concept mapping in the clinical setting as effective educational method to promote students' problem solving skills. Course planners and educators (faculty staff members) should receive training and acquire skills in adapting concept mapping as an innovative teaching and learning strategy, Replication the study on nursing students in other faculties.

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